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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/559,273	04/27/2000	Toshiya Uemura	PM 270586	2293

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 09/30/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/559,273

Applicant(s)

UEMURA ET AL.

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 July 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 13-26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1 and 2 are rejected under 35 U.S.C. 102(e) as being anticipated by Onomura et al.

Regarding claim 1, Onomura et al discloses on figure 5 a flip chip type of light emitting semiconductor device comprising a substrate 501; group III nitride compound semiconductor layers formed on said substrate; and a positive electrode 509 including at least one layer of a first positive electrode layer which is formed on or above a p-type semiconductor layer 506 and reflects light toward said substrate, said first positive electrode made of at least one of Pt (col. 9, lines 59-60).

Regarding claim 2, Onomura et al discloses on figure 5 the positive electrode 509 has a multi-layer structure made of a plural kinds of metals (col. 9, lines 59-60).

Claims 1 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Nitta et al.

Regarding claim 1, Nitta et al discloses on figure 5b a flip chip type of light emitting semiconductor device comprising a substrate 12; group III nitride including at least one layer of a first positive electrode layer 26' which is formed on or above a p-type semiconductor layer 22 and reflects light toward said substrate, said first positive electrode layer being made of Rh (col. 10, lines 38-45).

Regarding claim 12, Nitta et al discloses on figure 5b the positive electrode further comprising a second positive electrode 32A which is made of at least one of Au formed on the first positive electrode layer 26'.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onomura et al as applied to claim 1 above, and further in view of Yanagihara et al.

Regarding claims 3 and 4, Onomura et al discloses substantially all the structure set forth in the claimed invention except a first thin film metal layer made of cobalt, nickel or alloy of one of these metals formed between the p type semiconductor layer and the first positive electrode layer. However, Yanagihara et al disclose on figure 2C a

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first thin film metal layer 4 made of cobalt, nickel or alloy of one of these metals formed between the p-type semiconductor layer 2 and the first positive electrode layer 6. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Onomura et al by having a first thin film metal layer made of cobalt, nickel or alloy of one of these metals formed between the p-type semiconductor layer and the first positive electrode layer for the purpose of providing a low contact resistance between the ohmic electrode and the p-type semiconductor layer as taught by Yanagihara et al (col. 3, lines 55-60).

Regarding claims 5-6, Onomura et al and Yanagihara et al together disclose all the structure set forth in claims 5-6.

Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onomura et al and Yanagihara et al, and further in view of Neumann et al.

Regarding claims 7 and 8, Onomura et al discloses substantially all the structure set forth in the claimed invention except the second thin film metal layer made of at least one of gold and an alloy including gold. However, Neumann et al discloses on figure 1 the second thin film metal layer 5 made of at least one of gold and an alloy including gold (col. 3, line 27). In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Onomura et al and Yanagihara et al by having the second thin film metal layer made of at least one of gold and an alloy including gold for the purpose of providing a highly desirable, good ohmic contact as taught by Neumann et al (col. 3m lines 26-29).

Regarding claims 9-10, Yanagihar et al disclose on figure 2C a thickness of the second thin film metal layer 5 is in the range of 10A to 500A (col. 5, lines 61-61).

Response to Arguments

Applicant's arguments filed on 7/26/2002 have been fully considered but they are not persuasive.

With respect to claim 1, applicant argues that Onomura et al does disclose a "flip chip" type light-emitting device having the high reflective coat reflecting light toward the substrate. However, Onomura et al discloses a flip chip type light-emitting device (col. 6, lines 52-53) is having a similar structure of the claimed invention. Also, the positive electrode 509 (figure 5) is made of Pt as recited in claim 1 and thus it should reflect light toward the substrate.

With respect to claim 1, applicant argues that Nitta does not disclose a "flip chip" type light-emitting device having the high reflective coat reflecting light toward the substrate. However, Nitta discloses a flip chip type (col. 4, line 43) is having a similar structure of the claimed invention. Also, the positive electrode 26' (figure 5b) is made of Rh as recited in claim 1 and thus it should reflect light toward the substrate.

With respect to claim 3-6, the only difference between the claimed subject matter and Onomura et al is a first thin film metal layer made of cobalt, nickel or alloy of one of these metals. Yanagihara et al discloses a first thin film metal layer made of cobalt, nickel or alloy of one of these metals and thus with a strong motivation provided by Yanagihara et al, it would have been obvious to combine Onomura et al and Yanagihara et al as mentioned above.

With respect to claims 7-10, the only difference between the claimed subject matter and Onomura et al is a second thin film metal layer made of at least one of gold and an alloy including gold. However, Neumann et al discloses a second thin film metal layer made of at least one of gold and an alloy including gold and thus with a strong motivation provided by Neumann et al, it would have been obvious to combine Onomura et al and Neumann et al as mentioned above.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
September 27, 2002

A handwritten signature in black ink, appearing to read 'Eddie Lee', with a large, sweeping initial 'E'.

EDDIE LEE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800